

## WHAT IS CLAIMED IS :

1. A high-capacity electronic switching system comprising:  
two or more first stage switch modules to each of which one or more subscriber terminals are connected and each of which executes signal switching for signals from/to the subscriber terminals; and  
5 a second stage switch module for receiving a signal outputted by one of the first stage switch modules via a line, switching the signal, and thereby outputting the signal to another one of the first stage switch modules via a line, wherein:  
each of the first stage switch modules is connected to another one  
10 of the first stage switch modules via a special-purpose link for setting a communication link between the first stage switch modules when necessary.
2. A high-capacity electronic switching system as claimed in claim 1, wherein every two of the first stage switch modules are connected together by a line of the special-purpose link directly.
3. A high-capacity electronic switching system as claimed in claim 1, wherein the special-purpose link connects the first stage switch modules so that communication links between every two first stage switch modules can at least be set via one or more lines of the special-  
5 purpose link.
4. A high-capacity electronic switching system as claimed in claim 1, wherein the setting of the communication link via the special-purpose link is executed when an abnormal condition of the second stage switch module occurred and normal communication link setting between  
5 two first stage switch modules via the second stage switch module is impossible.

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5. A high-capacity electronic switching system as claimed in claim 1, including one or more central control units for controlling the first stage switch modules and the second stage switch module.

6. A high-capacity electronic switching system as claimed in claim 5, wherein the central control units include one or more first central control units for controlling the first stage switch modules and a second central control unit for controlling the second stage switch module, and  
5 necessary control information is communicated between the central control units via a control bus.

7. A high-capacity electronic switching system as claimed in claim 6, wherein the setting of the communication link via the special-purpose link is executed when an abnormal condition of the control bus  
such as disconnection occurred and the control information  
5 communication between the central control units via the control bus is impossible.

8. A high-capacity electronic switching system as claimed in claim 1, wherein the setting of the communication link via the special-purpose link is executed when an abnormal condition of the line between the first stage switch module and the second stage switch module  
such as  
5 disconnection occurred and normal communication link setting between two first stage switch modules via the line is impossible.

9. A high-capacity electronic switching system as claimed in claim 1, wherein the special-purpose link communicates analog signals.

10. A high-capacity electronic switching system as claimed in claim 1, wherein the special-purpose link communicates digital signals.

11. A high-capacity electronic switching system as claimed in claim 1, wherein the special-purpose link employs channel associated signaling.

12. A high-capacity electronic switching system as claimed in claim 1, wherein the special-purpose link employs common channel signaling.

13. A high-capacity electronic switching system comprising:

two or more first stage switch modules to each of which one or more subscriber terminals are connected and each of which executes signal switching for signals from/to the subscriber terminals; and

5    → two or more second stage switch modules each of which executes signal switching between the first stage switch modules and signal switching between the first stage switch module and a third stage switch module, wherein:

10    each of the first stage switch modules is connected to another one of the first stage switch modules via a special-purpose link for setting a communication link between the first stage switch modules when necessary, and

15    → each of the second stage switch modules is connected to another one of the switch modules via a special-purpose link for setting a communication link between the switch modules when necessary.

14. A high-capacity electronic switching system as claimed in claim 13, wherein every two of the second stage switch modules are connected together by a line of the special-purpose link directly.

15. A high-capacity electronic switching system as claimed in claim 13, wherein the special-purpose link connects the second stage

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switch modules so that communication links between every two second stage switch modules can at least be set via one or more lines of the special-purpose link.

16. A high-capacity electronic switching system as claimed in claim 13, wherein the setting of the communication link via the special-purpose link is executed when an abnormal condition of an upper stage switch module occurred and normal communication link setting between two switch modules via the upper stage switch module is impossible.

17. A high-capacity electronic switching system as claimed in claim 13, including one or more central control units for controlling the switch modules, and necessary control information is communicated between the central control units via a control bus.

18. A high-capacity electronic switching system as claimed in claim 17, wherein the setting of the communication link via the special-purpose link is executed when an abnormal condition of the control bus such as disconnection occurred and the control information communication between the central control units via the control bus is impossible.

19. A high-capacity electronic switching system as claimed in claim 13, wherein the setting of the communication link via the special-purpose link is executed when an abnormal condition of a line between switch modules such as disconnection occurred and normal communication link setting between two switch modules via the line is impossible.

20. A high-capacity electronic switching system as claimed in

claim 13, wherein the special-purpose link communicates analog signals.

21. A high-capacity electronic switching system as claimed in claim 13, wherein the special-purpose link communicates digital signals.

22. A high-capacity electronic switching system as claimed in claim 13, wherein the special-purpose link employs channel associated signaling.

23. A high-capacity electronic switching system as claimed in claim 13, wherein the special-purpose link employs common channel signaling.

24. A high-capacity electronic switching method for a high-capacity electronic switching system including two or more first stage switch modules to each of which one or more subscriber terminals are connected and each of which executes signal switching for signals from/to  
5 the subscriber terminals, and a second stage switch module for receiving a signal outputted by one of the first stage switch modules via a line, switching the signal, and thereby outputting the signal to another one of the first stage switch modules via a line, wherein:

each of the first stage switch modules is connected to another one  
10 of the first stage switch modules via a special-purpose link, and a communication link is set between the first stage switch modules via the special-purpose link when necessary.

25. A high-capacity electronic switching method as claimed in claim 24, wherein every two of the first stage switch modules are connected together by a line of the special-purpose link directly.

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26. A high-capacity electronic switching method as claimed in claim 24, wherein the special-purpose link is connected so that communication links between every two first stage switch modules can at least be set via one or more lines of the special-purpose link.

27. A high-capacity electronic switching method as claimed in claim 24, wherein the setting of the communication link via the special-purpose link is executed when an abnormal condition of the second stage switch module occurred and normal communication link setting between two first stage switch modules via the second stage switch module is impossible.

28. A high-capacity electronic switching method as claimed in claim 24, wherein the setting of the communication link via the special-purpose link is executed when an abnormal condition of a control bus for communicating necessary control information between central control units of the switch modules occurred and the control information communication between the central control units via the control bus is impossible.

29. A high-capacity electronic switching method as claimed in claim 24, wherein the setting of the communication link via the special-purpose link is executed when an abnormal condition of the line between the first stage switch module and the second stage switch module such as disconnection occurred and normal communication link setting between two first stage switch modules via the line is impossible.

30. A high-capacity electronic switching method for a high-capacity electronic switching system including two or more first stage switch modules to each of which one or more subscriber terminals are



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